

Will anticipating irony facilitate it immediately?

Rachel Giora

This research paper reports findings of eight studies looking into the processes involved in making sense of context-based (ironic) versus salience-based (nonironic) interpretations, the latter relying on the lexicalised and cognitively prominent meanings of the utterances' constituents. The aim of these studies was to test the claim that rich contextual information, supportive of the contextually appropriate (ironic) interpretation, can affect that interpretation immediately, without having to go through the inappropriate, salience-based interpretation first (Gibbs 1994, 2002). Results demonstrate that strong contexts, inducing anticipation for an ironic utterance, did not facilitate ironic interpretations immediately compared to salience-based nonironic interpretations. They show that ironic interpretations were neither faster than nor as fast to derive as nonironic interpretations, which were always first to be processed. For comprehenders, then, irony was slow to make sense of; slower than deriving the inappropriate but salience-based interpretation, regardless of whether the context was conversational or narrative. Overall, comprehenders' processing of salient meanings has a bearing on communicative processes, affecting the ease and the speed of language users' gleaning ironic import.

1. Introduction

According to the view of Irony as Indirect Negation (Giora 1995), irony resides in the gap between what is said and the situating described; the larger the gap, the more apt the ironic remark (Giora, Federman, Kehat, Fein and Sabah 2005). For an illustration, consider the following example, in which the gap between what is said ("the *splendid* job of our *fine* pilots) and the situation described ("hundreds of funerals in Gaza") is spelt out:

Hooray to the Israeli Airforce pilots doing a splendid job" effused Brigadier General Avi Benayahu, the IDF spokesperson, talking to Yonit Levy – white turtleneck against a background of tanks, vis à vis hundreds of funerals in Gaza – a token of the *splendid* job of our *fine* pilots. (Levy 2008; emphasis added)

Will such a large gap between what is said and what is referred to facilitate irony processing? On Irony as Indirect Negation view and the Graded Salience Hypothesis (Giora 1995, 1997, 2003), processing an utterance whose interpretation is removed from the salient meanings of its components should be more effort-consuming than deriving an interpretation based on the coded, salient meanings of its constituents. Would rich and supportive contextual information make a difference? For instance, would a context predictive of an ironic utterance facilitate its processing immediately?

According to Lucas (1965: 127) it might: “A too constant irony defeats itself, by ceasing to surprise.” This statement ties in well with the assumption that building up expectancy for an ironic utterance by preceding ironic sequences allows its interpretation to be captured directly and immediately, without having to go through its salience-based nonironic interpretation first. Bypassing the nonironic interpretation thus saves comprehenders the surprise of encountering a contextually incompatible interpretation, which might complicate comprehension processes (*the expectation hypothesis*).

But is it really the case that building up anticipation for an ironic utterance allows frictionless interpretation processes? Can strong contextual information, allowing an ironic utterance to be anticipated, indeed facilitate that interpretation immediately and exclusively? Or is it the case that even such a strong context cannot preempt salience-based, nonironic interpretations? This is as yet an unresolved issue within psycholinguistics.

According to *the graded salience hypothesis* (Giora 1997, Giora 2003; Giora et al. 2007), salient meanings, meanings coded and foremost on our mind due to, for instance, exposure or prototypicality, cannot be blocked. Consequently, utterance interpretation relies on the salient meanings of its components. Such “salience-based” interpretations, interpretations based on the salient meanings of the utterance components, are activated immediately, regardless of contextual information or (non)literal-ity. According to the graded salience hypothesis, then, even a highly supportive context, predictive of an oncoming utterance whose interpretation is nonsalient (i.e. non-coded or novel), cannot preempt its salience-based albeit inappropriate interpretation. Such an inappropriate interpretation should, therefore, be activated initially and catch comprehenders by surprise, incurring further interpretation processes.

Note, however, that despite its inappropriateness, this salience-based interpretation need not be suppressed, since it need not interfere with the final, contextually compatible interpretation (*the retention/suppression hypothesis*) (Giora 2003, Giora and Fein 1999). The result is often the involvement of such inappropriate interpretations (e.g. the literal interpretation of metaphors and ironies or the metaphoric interpretation of ironies) in the final output of utterance interpretation (as shown by e.g. Brisard et al. 2001; Giora and Fein 1999; Giora et al. 2007; Pexman et al. 2000, Tarter et al. 2002; see also Giora 1997, 1999, 2003).

According to *the direct access view*, however, strong contextual support inducing an expectation for a nonsalient interpretation (e.g. irony) should allow comprehenders to activate that contextually compatible interpretation immediately and exclusively,

without involving contextually incompatible interpretations first (*the expectation hypothesis*) (Gibbs 1979, 1986, 1994, 2002; Ivanko and Pexman 2003; Ortony et al. 1978).

The direct access view argues against *the standard pragmatic model* (Grice 1975) according to which it is the literal interpretation of an utterance that is always activated first, regardless of contextual information. When incompatible, this interpretation is later suppressed and replaced by a compatible alternative. Like the graded salience hypothesis, the standard pragmatic model allows inappropriate interpretations to be involved in the comprehension processes initially; unlike the retention/suppression hypothesis, both the direct access view and the standard pragmatic model admit no inappropriate interpretations in the final output of the interpretation process.

2. Testing the expectation hypothesis: initial and late processes

As mentioned above, the various theories differ in their predictions regarding the involvement of inappropriate interpretations in initial comprehension processes. According to the direct access view, when context is highly predictive of a nonsalient (ironic) interpretation, initial processes should not involve contextually incompatible (literal/nonliteral) interpretations. According to the standard pragmatic model, even when context is highly predictive of a nonsalient (ironic) interpretation, initial processes should always involve the literal, contextually incompatible interpretation first. According to the graded salience hypothesis, initial processes should involve salience-based (literal/nonliteral) interpretations even when contextually incompatible, e.g. the metaphoric interpretation of “This one’s really sharp”, when said of an idiot (Colston and Gibbs 2002).

To test the different predictions of the various models, eight new experiments (in Hebrew) were run (Giora et al. 2010). These more recent experiments build on previous studies (Giora et al. 2007), while further strengthening the expectation for an ironic utterance established in those studies. Materials included contrived dialogues and narratives, strengthened by multiple supportive cues (cf. Katz 2009), biased towards either the context-based (ironic) interpretation or salience-based (nonironic) interpretation of the target. Measures varied between reading times (of target utterances and the next few words) and lexical decisions (to probe-words following these targets). Participants were presented texts, promoting either targets’ context-based (ironic) interpretations or salience-based (nonironic) interpretations.

Given that expectancy may be built up by preceding stimulus sequences (Jentzsch and Werner 2002; Kirby 1976; Laming 1968, 1969; Soetens et al. 1985), in Giora et al.’s (2007) first experiment, expectancy was affected by introducing an ironic utterance in dialogue mid-position (see 1–2 below; ironies, in italics, for convenience). In Experiments 3–4, expectation was induced by the experimental design which presented participants either with items, all of which ending in an ironic utterance (+Expectation condition), or with items equally divided between literal and ironic endings

(-Expectation condition). Whereas the +Expectation condition allows participants to acquire anticipation with experience, the -Expectation condition does not.

Results of Giora et al.'s (2007) first experiment showed that despite a demonstrated anticipation of an ironic target (controlled by 2 pretests), participants took longer to read the same target ("Sounds like you are going to have a really interesting evening") in an ironically (1) than in a literally biasing context (2).

- (1) Barak: I finish work early today.
 Sagit: So, do you want to go to the movies?
 Barak: I don't really feel like seeing a movie.
 Sagit: So maybe we could go dancing?
 Barak: No, at the end of the night my feet will hurt and I'll be tired.
 Sagit: *You're a really active guy ...*
 Barak: Sorry, but I had a rough week.
 Sagit: So what are you going to do tonight?
 Barak: I think I'll stay home, read a magazine, and go to bed early.
 Sagit: *Sounds like you are going to have a really interesting evening.*
 Barak: So we'll talk sometime this week.
- (2) Barak: I was invited to a film and a lecture by Amos Gitai.
 Sagit: That's fun. He is my favourite director.
 Barak: I know, I thought we'll go together.
 Sagit: Great. When is it on?
 Barak: Tomorrow. We'll have to be in Metulla¹ in the afternoon.
 Sagit: *I see they found a place that is really close to the centre.*
 Barak: I want to leave early in the morning. Do you want to come?
 Sagit: I can't, I'm studying in the morning.
 Barak: Well, I'm going anyway.
 Sagit: *Sounds like you are going to have a really interesting evening.*
 Barak: So we'll talk sometime this week.

In Giora et al.'s (2007) third and fourth experiments, the expectation hypothesis was tested by means of measuring response times to probes related either to the appropriate, nonsalient (ironic) interpretation or to the inappropriate, salience-based (nonironic) interpretation. Four pretests controlled for (a) the salience of the probes (which provided for base-line means); (b) their similar relatedness to the interpretation (rather than to the lexical meanings) of their respective targets, either the ironic or the nonironic utterances; and for (c) their reliance on the interpretation of the target sentence in its context (rather than on the context alone). All in all, findings showed no differences between the +Expectation and -Expectation conditions, whether at the shorter (750 ms) or the longer (1000ms) interstimulus intervals (ISIs). In both the +Expectation and in the -Expectation conditions, only salience-based nonironic

1. Metulla is the most northern town in Israel.

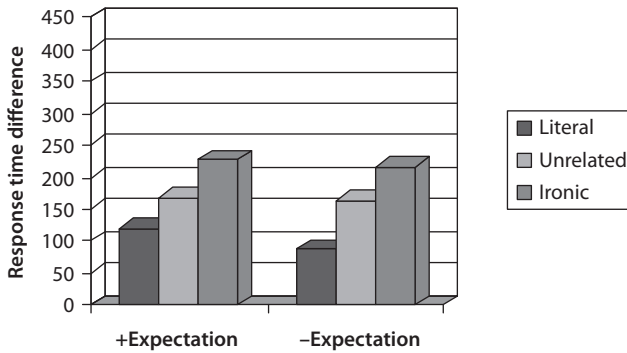


Figure 1. Mean response times at 750 ms ISI (after subtraction of baseline means, Experiment 3)

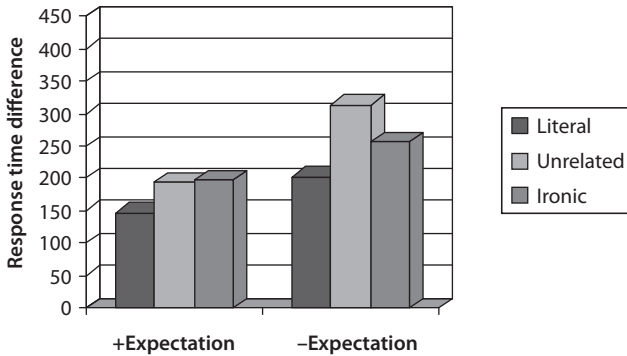


Figure 2. Mean response times at 1000 ms ISI (after subtraction of baseline means, Experiment 4)

probes were facilitated, whereas nonsalient ironically related probes were not, irrespective of length of ISI (Figures 1–2):

Evidence in Giora et al. (2007) then suggests that strong contexts, such that allow comprehenders to anticipate an ironic utterance, do not facilitate nonsalient ironic interpretations immediately. Would multiplying constraints supportive of an ironic interpretation avert the trend and facilitate an ironic interpretation immediately and exclusively as predicted by the expectation hypothesis?

In Giora et al. (2010), we aimed to test the expectation hypothesis under stricter conditions. To do that, we added additional constraints to those operating in Giora et al. (2007), using, however, the same (or very similar) items and tasks.

In the first three experiments in Giora et al. (2010), involving 24 participants each, the dialogues used were based on those in Giora et al.'s (2007) first experiment.

However, they were slightly revised but also enriched with additional biasing cues. To strengthen the ironic bias of the ironically biasing dialogues, which included ironic statements in dialogue mid-position, information about the ironic intention of the speaker was indicated explicitly, immediately before she uttered an ironic statement. In addition, to render salience-based contexts similarly biasing, these dialogues included no irony in dialogue mid-position and a salience-based utterance in final position. In addition, at times, speakers' straightforward intention was indicated immediately before they spoke up, including the target, salience-based statement. Thus, whereas the ironically biasing contexts featured an ironic turn in dialogue mid-position and an ironic target sentence, both marked as such by an explicit adverb (in italics for convenience, see 3), the salience-based dialogues involved only straightforward statements, some of which marked as such, including the target utterance (in italics for convenience, see 4):

- (3) Sagi: Yesterday I started working as a security guard at Ayalon shopping mall.
 Yafit: Irit indeed told me she had seen you there.
 Sagi (desperate): It turned out it's quite a tough job, being on your feet all day.
 Yafit: I hope that at least the pay is worth the effort.
 Sagi: At the moment I get 18 shekels per hour.
 Yafit (*mocking*): *Great salary you're getting.*
 Sagi: I know that's not enough but they promised a raise soon.
 Yafit: And how much will you actually get after the raise?
 Sagi: In two weeks from now I'll get 20 shekels per hour.
 Yafit (*still mocking*): *Wow, a highly significant raise.*
- (4) Sagi: Yesterday I started working as security guard at Ayalon shopping mall.
 Yafit: Irit indeed told me she had seen you there.
 Sagi (desperate): It turned out it's quite a tough job, being on your feet all day.
 Yafit: I hope that at least the pay is worth the effort.
 Sagi: At the moment I get 18 shekels per hour.
 Yafit (*sadly*): *A very low salary.*
 Sagi: I know that's not enough, but they promised a raise soon.
 Yafit: And how much will you actually get after the raise?
 Sagi: In two weeks from now I'll get 30 shekels per hour.
 Yafit (*happily*): *Wow, a highly significant raise.*
 Probes: salience-based – large, ironic – small, unrelated – young

Materials included 22 dialogue-pairs. Tasks included self-paced reading of the dialogues, lexical decisions to probes (ironically related, salience-based related, unrelated,

and nonword probes), and answering yes/no questions. Reading times of literal and ironic (dialogue final) target statements and response times to probes at three ISIs (750, 1500, and 2000 ms) were measured.

Three pretests controlled for (a) the similar salience status of the 3 types of probe words, which were measured online in terms of responses times, following neutral contexts; for (b) the ironic bias of the ironically biased dialogues, which induced a significantly stronger expectation for an ironic utterance compared to the nonironic dialogues; and for (c) the equivalent relatedness of the related probes to the interpretation of their relevant target utterances in their respective contexts, and the unrelatedness of the unrelated probes.

Results demonstrate that strong contexts, predictive of an ironic utterance, failed to facilitate that utterance initially. Instead, they manifest faster reading times of non-ironic, salience-based targets compared to nonsalient, ironic targets (though this difference did not reach significance in Experiment 3). They further demonstrate that ironically related probes were not facilitated in either type of context or ISI. Instead, they were always longer than salience-based, nonironic probes, although the difference did not reach significance.

Results in Giora et al.'s (2010) first three experiments then replicate those adduced in Giora et al.'s (2007) first experiment. They support the graded salience hypothesis and argue against the direct access view and the expectation hypothesis. They show that even when contextual information was strongly biased in favour of nonsalient interpretations, these interpretations were not facilitated immediately. Instead, salience-based interpretations were activated initially, despite their incompatibility and unpredictability.²

In order to replicate the results of Giora et al.'s (2007) third and fourth experiments under more constrained conditions, another five experiments were run. Recall that in Giora et al.'s (2007) third and fourth experiments, we presented participants with items that were either biased toward the ironic interpretation (5) (+Expectation condition) or equally divided between ironically and salience-based biasing contexts (6) (–Expectation condition):

- (5) Sarit worked as a waitress in a small restaurant in central Naharia. The evening was slow, and even the few customers she did wait on left negligible tips. She didn't think that the elderly man who walked in alone and ordered just a couple of small sandwiches would be any different. Indeed, after making her run back and forth throughout the meal, he left, and she collected his pay for the meal from off his table and found 2.5 NIS tip! When she showed her friends how much she got, Orna commented: "*That was real noble of him!*"

². See, however, Regel et al. (2010), who show that pragmatic knowledge about speakers' ironic style can affect language comprehension 200 ms after the onset of a critical word, as well as neurocognitive processes underlying the later stages of comprehension (500–900 ms post-onset).

- (6) Sarit worked as a waitress in a small restaurant in central Naharia. The evening was slow, and even the few customers she did wait on left negligible tips. She didn't think that the elderly man who walked in alone and ordered just a couple of small sandwiches would be any different. But when he had left, and she collected his pay for the meal from off his table, she found no less than 60 NIS tip! When she showed her friends how much she got, Orna commented: *"That was real noble of him!"*

Probes: salience-based related – generous, ironically related – stingy, unrelated – sleepy

Giora et al.'s (2007) third and fourth experiments involved 72 participants each. Participants read short passages and made lexical decisions to ironically related, salience-based related, unrelated, and nonword probes at 750 (Experiment 3) and 1000 ms (Experiment 4) ISI. Four pretests, involving another four groups of participants, controlled for (a) the similar salience status of the three types of probe words, measured online by means of response times following a neutral context; for (b) the probes' similar relatedness to the interpretation of the target utterance and for the unrelatedness of the unrelated probes; for (c) the similar relatedness of the related probes to the interpretation of their relevant target utterances in their respective contexts, and of the unrelatedness of the unrelated probes to these targets; and (d) for the ironic and salience-based interpretation of the target utterances in their respective contexts (see Giora et al.'s (2007) second experiment).

Giora et al.'s (2010) Experiments 4–8, involving 72 participants each, used the materials and the design of the original items of Giora et al.'s (2007) third and fourth experiments. This time, however, another constraint was added to the +Expectation condition: our participants were told that we were after irony interpretation. In Experiment 4, we attempted at replicating Giora et al.'s (2007) results of third experiment which allowed participants 750 ms processing time before they made a lexical decision task (see Figure 1). In Experiment 5, we attempted at replicating Giora et al.'s (2007) results of fourth experiment which allowed participants 1000 ms processing time before they made a lexical decision task (see Figure 2).

Results of Giora et al.'s (2010) Experiments 4–5, however, show that the additional constraint introduced in these experiments, disclosing the aim of our experiments, did not affect the results. As in Giora et al. (2007), it was only the salience-based interpretation that was facilitated in both types of context (salience-based/ironically biased contexts), in both conditions (+/- Expectation), and in both ISIs (Figures 3–4):

In Experiments 6–8, involving 72 participants each, we attempted to replicate the results of Experiments 4–5 while allowing participants longer processing time. In all these experiments, the additional constraint, i.e. disclosing the aim of our studies, was introduced in the +Expectation condition. The various experiments differed from each other only in terms of length of ISIs: in Experiment 6, the ISI was 1500 ms; in Experiment 7 it was 2000 ms; and in Experiment 8 it was 3000 ms. Results of

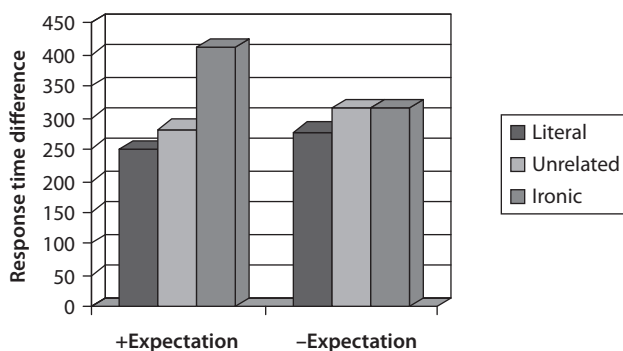


Figure 3. Mean response times at 750 ms ISI (after subtraction of baseline means) + disclosure of aim (Experiment 4)

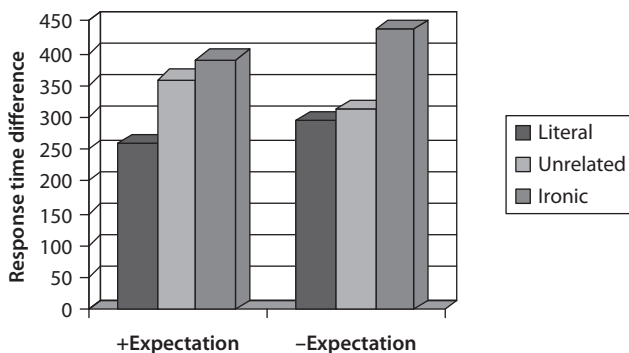


Figure 4. Mean response times at 1000 ms ISI (after subtraction of baseline means) + disclosure of aim (Experiment 5)

Experiments 6–7 replicated those of 4–5. Despite the longer processing time allowed, only the probes related to the salience-based interpretation of the targets were facilitated, regardless of type of context bias (salience-based vs. nonsalient/ironic), condition (–Expectation vs. +Expectation) or ISI (1500, vs. 2000; see Figures 5–6).

Results of Experiment 8 show that even at this late stage, 3000 ms following the reading of the target statement, irony is not facilitated. However, at this stage, its literal interpretation already begins to decay. Although the literally related probes are still more accessible than the ironically related probes, they are no longer more accessible than the unrelated ones.

Evidence so far failed to demonstrate that strong contexts, anticipating an ironic utterance, can facilitate ironic interpretations immediately compared to salience-based nonironic interpretations. Both multiple constraints and extra processing time did not make a difference either (see also Filik and Moxey 2010).

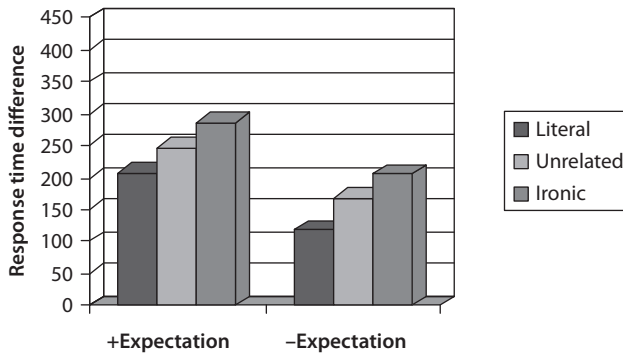


Figure 5. Mean response times at 1500 ms ISI (after subtraction of baseline means) + disclosure of aim (Experiment 6)

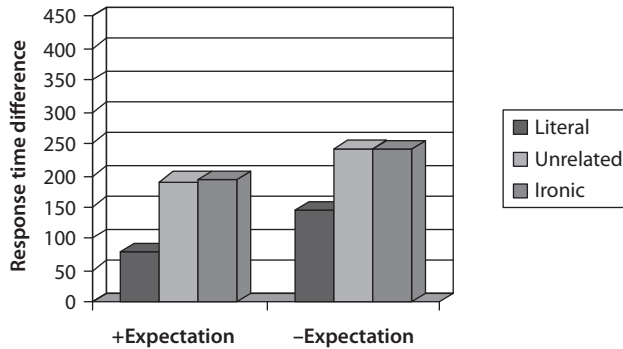


Figure 6. Mean response times at 2000 ms ISI (after subtraction of baseline means) + disclosure of aim (Experiment 7)

3. General discussion

Can strong contextual information, rich in supportive constraints, govern appropriate interpretation processes immediately even if nonsalient? More specifically, can a strong context, predictive of a nonsalient ironic interpretation, override the primacy of salient meanings and hence salience-based nonironic interpretations so that the ironic interpretation is tapped directly without having to go through inappropriate salience-based interpretations first (as proposed by e.g. Gibbs 2002, Katz 2009, Pexman et al. 2000)? For example, would the presence of an ironic speaker in a discourse situation which allows comprehenders to anticipate another ironic turn on the part of that speaker facilitate that ironic turn immediately and exclusively? Or, would exposure to repetitive uses of irony in an environment rich in ironic utterances save comprehenders the

effort of engaging in complex multi-stage interpretation processes, assumed by Giora (1977, 2003) and Grice (1975) among others?

The various theories in the field of psycholinguistics have different predictions with regard to the effects of a strongly predictive context on the processes involved in interpreting anticipated utterances. According to the direct access view (Gibbs 1994, 2002), a context predictive of an oncoming ironic utterance should facilitate its compatible ironic interpretation directly without having to go through its incompatible literal interpretation first (the expectation hypothesis). According to the standard pragmatic model (e.g. Grice 1975), comprehension processes always involve the literal interpretation of the utterance first, regardless of strength of contextual information to the contrary. According to the graded salience hypothesis (Giora 1997, 2003), strong contextual information, predictive of an oncoming utterance, cannot block salient (coded and prominent) meanings and hence salience-based utterance-level interpretations (constructed on the basis of these meanings) even when incompatible. As a result, incompatible salience-based interpretations, whether literal or nonliteral, should be involved in the interpretation of compatible nonsalient interpretations initially, regardless of whether they are literal or nonliteral.

In Giora et al. (2007), three experiments tested the expectation hypothesis. Results showed that, even when contexts exposed participants to an environment rich in ironic utterances, only salience-based interpretations were activated immediately and remained active also later (at 750 and 1000 ms ISIs). In Giora et al. (2010), another eight experiments further tested the expectation hypothesis under more constraining conditions. Using Giora et al.'s (2007) items which were predictive of either an oncoming ironic or a salience-based utterance, Giora et al. (2010) strengthened the expectation for an ironic utterance by adding more biasing constraints and cues. In Experiments 1–3, the contexts raising an expectation for an ironic utterance made explicit the ironic intent of the speaker, who also uttered an ironic statement in context mid-position; the context raising an expectation for a nonironic utterance did not contain any ironic utterance and cued comprehenders to nonironic interpretations. In Experiments 4–8, participants were either told they were participating in an experiment on irony and were exclusively exposed to items which ended in an ironic utterance (+Expectation condition), or were ignorant of the experiment's aim and exposed to items either ending in an ironic utterance or in a nonironic utterance (–Expectation condition).

The results of eight experiments, allowing various durations of processing time, showed that irony interpretation is not a smooth process. Even in a strong context, prompting anticipation for an ironic utterance, the ironic interpretation is not facilitated immediately or exclusively. Instead, incompatible salience-based utterance level interpretations are made available immediately and retained for as long as 2000 ms ISI. Only at 3000 ms ISI does it begin to decay, suggesting that in irony interpretation the salience-based interpretation is retained rather than suppressed. Evidence

utterance, can facilitate ironic interpretations immediately compared to salience-based nonironic interpretations, as shown Giora et al.'s (2007) and Giora et al.'s (2009).

All these results then contest the expectation hypothesis and the direct access view. However, they support the graded salience hypothesis and, partly so, the standard pragmatic model.

Acknowledgement

This paper is supported by a grant to the author by THE ISRAEL SCIENCE FOUNDATION (grant No. 652/07).

References

- Brisard, Frank, Steven Frisson and Dominiek Sandra 2001. "Processing unfamiliar metaphors in a self-paced reading task." *Metaphor and Symbol* 16: 87–108.
- Colston, Herbert L. and Raymond W. Gibbs. 2002. "Are irony and metaphor understood differently?" *Metaphor and Symbol* 17: 57–60.
- Filik, Ruth and Linda M. Moxey. 2010. "The on-line processing of written irony." *Cognition*. doi:10.1016/j.cognition.2010.06.005.
- Gibbs, Raymond W. 1979. "Contextual effects in understanding indirect requests." *Discourse Processes* 2: 1–10.
- Gibbs, Raymond W. 1986. "On the psycholinguistics of sarcasm." *Journal of Experimental Psychology, General* 115: 3–15.
- Gibbs, Raymond W. 1994. *The Poetics of Mind: Figurative Thought, Language, and Understanding*. New York: Cambridge University Press.
- Gibbs, Raymond W. 2002. "A new look at literal meaning in understanding what is said and implicated." *Journal of Pragmatics* 34: 457–486.
- Giora, Rachel. 1997. "Understanding figurative and literal language: The graded salience hypothesis." *Cognitive Linguistics* 8(3): 183–206.
- Giora, Rachel. 1999. "On the priority of salient meanings: Studies of literal and figurative language." *Journal of Pragmatics* 31: 919–929.
- Giora, Rachel. 2003. *On our Mind: Salience, Context, and Figurative language*. New York: Oxford University Press.
- Giora, Rachel and Ofer Fein. 1999. "On understanding familiar and less-familiar figurative language." *Journal of Pragmatics* 31: 1601–1618.
- Giora, Rachel, Ofer Fein, Keren Aschkenazi and Inbar Alkabetz-Zlozover. 2007. Negation in context: A functional approach to suppression. *Discourse Processes* 43: 153–172.
- Giora, Rachel, Ofer Fein, Dafna Laadan, Jon Wolfson, Michal Zeituny, Ran Kidron, Ronnie Kaufman and Ronit Shaham. 2007. "Expecting irony: Context vs. salience-based effects." *Metaphor and Symbol* 22(2): 119–146.
- Giora, Rachel, Ofer Fein and Meni Yeari. 2010. "Interpreting irony: Will expecting it make a difference? Unpublished Ms. (in preparation).

- Grice, Herbert Paul. 1975. "Logic and conversation." In *Speech Acts. Syntax and Semantics* Peter Cole and Jerry Morgan (eds), 41–58. New York: Academic Press.
- Ivanko, Stacey L. and Penny M. Pexman. 2003. "Context incongruity and irony processing." *Discourse Processes* 35: 241–279.
- Jentsch, Ines and Sommer Werner. 2002. "The effect of intentional expectancy on mental processing: a chronopsychophysiological investigation." *Acta Psychologica* 111(3): 265–282.
- Katz, Albert. 2009. "Commentary on Does an ironic situation favor an ironic interpretation." In *Cognitive Poetics. Goals, Gains and Gaps*. Geert Brône and Jeroen Vandaele (eds), 401–406. Berlin/New York: Mouton de Gruyter.
- Kirby, John R. 1976. *Information Processing and Human Abilities*. University of Alberta, Alberta.
- Laming, Donald R. J. 1968. *Information Theory of Choice-Reaction Times*. London: Academic Press.
- Laming, Donald R. J. 1969. "Subjective probability in choice-reaction experiments." *Journal of Mathematical Psychology* 6: 81–120.
- Lucas, Frank L. 1965. "Long lives the emperor." *The Historical Journal* 8(1): 126–135.
- Ortony, Andrew, Diane L. Schallert, Ralph E. Reynolds and Stephen J. Antos. 1978. "Interpreting metaphors and idioms: Some effects of context on comprehension." *Journal of Verbal Learning and Verbal Behavior* 17: 465–477.
- Pexman, Penny M., Todd R. Ferretti and Albert Katz. 2000. "Discourse factors that influence online reading of metaphor and irony." *Discourse Processes* 29: 201–222.
- Regel, Stefanie, Seana Coulson and Thomas C. Gunter. 2010. "The communicative style of a speaker can affect language comprehension? ERP evidence from the comprehension of irony." *Brain Research*, 1311: 121–135.
- Soetens, Eric, Louis C. Boer and Johan E. Hueting. 1985. "Expectancy or automatic facilitation? Separating sequential effects in two-choice reaction time." *Journal of Experimental Psychology: Human Perception and Performance* 11: 598–616.
- Tartter, Vivien C., Hilary Gomes, Boris Dubrovsky, Sophie Molholm and Rosmarie V. Stewart. 2002. "Novel metaphors appear anomalous at least momentarily: evidence from N400." *Brain and Language* 80(3): 488–509.

